



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Am

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/506,160 02/17/00 CHAI

B UCF-237

EXAMINER

MM91/1019

Brian S Steinberger
101 Brevard Ave
Cocoa FL 32922

HANNAHER, C	
ART UNIT	PAPER NUMBER

2878

DATE MAILED:

10/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/506,160

Applicant(s)

CHAI ET AL.

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. As set forth in MPEP § 609:

37 CFR 1.98(b) requires that each U.S. patent listed in an information disclosure statement be identified by patentee, patent number, and issue date. Each foreign patent or published foreign patent application must be identified by the country or patent office which issued the patent or published the application, an appropriate document number, and the publication date indicated on the patent or published application. Each publication must be identified by author (if any), title, relevant pages of the publication, date and place of publication. The date of publication supplied must include at least the month and year of publication, except that the year of publication (without the month) will be accepted if the applicant points out in the information disclosure statement that the year of publication is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue. The place of publication refers to the name of the journal, magazine, or other publication in which the information being submitted was published.

The patentee identified on each U.S. patent in the listing submitted February 17, 2000 has been supplemented by the Examiner where appropriate. The title and relevant pages of publication for each listed publication have been corrected and supplied, respectively, by the Examiner where necessary.

2. The information disclosure statement filed February 17, 2000 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Note that 37 CFR 1.98(a) provides no opportunity to submit a legible copy of only a portion of any listed U.S. patent.

Specification

3. The disclosure is objected to because of the following informalities: page 1, line 22, the symbol should appear as --NaI(Tl)-- without the use of a numeral; page 2, line 2, the symbol should appear as NaI(Tl) without the use of a capital letter; page 2, line 3, the symbol for the unit gram is "g"; page 2, line 16, the formula should not include a zero as element symbol; page 2, line 18, the symbol for the unit gram is "g"; page 2, line 19, the symbol should appear as --NaI(Tl)-- without the use of a numeral; page 2, line 22, the symbol for the prefix kilo is "k"; page 3, line 3, the symbol for the unit gram is "g"; page 3, line 12, the symbol for the unit gram is "g"; page 3, line 13, the symbol should appear as --NaI(Tl)-- without the use of a numeral; page 3, line 15, "there is no any"?; page 5, lines 20-24 through page 6, line 1, these lines fail to properly describe the views; page 6, line 12, the symbol for the unit degree Celsius is "°C"; page 7, line 1, the symbol for the unit degree Celsius is "°C"; page 7, line 18, the formula should not include a lower case letter as a subscript; page 7, line 19, the formula should not include lower case letters as a subscript; page 7, line 20, the formulas should not include a zero as element symbol; page 7, line 20, the second formula should not include the element symbol as a subscript; page 8, line 4, the use of a comma in the numerical value is improper; page 8, line 4, the formula should not include a zero as element symbol; page 8, line 5, the formula should not include a zero as element symbol; page 8, line 6, the formula should not include a zero as element symbol; page 8, line 21, the use of a comma in the numerical value is improper; page 9, line 12, the formula should not include a zero as element symbol; page 9, line 13, the formula should not include a zero as element symbol; page 9, line 15, the symbol for the prefix kilo is "k"; page 9, line 18, the symbol should appear as --NaI(Tl)-- without the use of a numeral; page 9, line 20, the symbol for the prefix kilo is "k"; page 9, line 21, it is readily apparent that Fig. 2 contains no plot; page 10, lines 16-17, the sentence has another ("The result has many important implications.")

inside it; page 11, line 9, it is readily apparent that Fig. 2 contains no plot; page 11, line 11, the formula should not include a zero as element symbol; page 11, line 16, the symbol for the unit degree Celsius is "°C"; page 11, line 21, the formula should not include a zero as element symbol; page 12, line 12, it is readily apparent that Fig. 4 contains no structure.

Appropriate correction is required.

4. Section 608.01 of the MPEP states in part:

In order to minimize the necessity in the future for converting dimensions... to the metric system of measurements when using printed patents... all patent applicants should use the metric (S.I.) units followed by the equivalent English units when describing their inventions....

The Assistant Secretary and Commissioner of Patents and Trademark strongly reiterated and emphasized strong encouragement for patent applicants to use the metric system in patent applications in a message appearing at 1135 O.G. 55 dated February 18, 1992. At some future time, the USPTO will consider making it a requirement.

Note the use of the barn. The Examiner is unable to require the use of SI units.

Claim Objections

5. Claim 9 is objected to because of the following informalities: the choice "an APFD diode" finds no antecedent basis in the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ozawa (US00549083A).

With respect to independent claim 1, Ozawa discloses a scintillator crystal **P** (Fig. 6) comprising cerium doped lutetium yttrium orthosilicate (claims 8, 12, and 17).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 2, 4, 3, and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melcher (US004958080A) in view of Watanabe *et al.* (GB001336518A).

With respect to independent claim 1, Melcher discloses (Fig. 1) a scintillator crystal **10** comprising cerium doped lutetium orthosilicate (column 4, line 9). Although the scintillator composition does not comprise, it is known from Watanabe *et al.* that a cerium doped lutetium yttrium orthosilicate phosphor is even more promising in terms of its scintillation properties (Table IV) as the cerium doped lutetium orthosilicate prepared by Melcher (column 4, lines 8-19). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify the scintillator crystal **10** of Melcher to have it comprise the luminescent material suggested by Watanabe *et al.* in view of the reasonable expectation of success based on the higher luminescence activity (more intense luminescence) reported therein.

With respect to dependent claim 2, the mole ratio of lutetium and yttrium in the phosphor composition suggested by Watanabe *et al.* (corresponding to the recited "y") is within the recited range (Table IV). The proportion of cerium suggested by Melcher is within the recited range (Table 4).

With respect to dependent claim 4, the mole ratio of lutetium and yttrium in the phosphor composition suggested by Watanabe *et al.* (corresponding to the recited "y") is within the recited range (Table IV). The proportion of cerium suggested by Melcher is within the recited range (Table 4).

With respect to dependent claim 3, the scintillator crystal suggested by Melcher is monocrystalline (single crystal).

With respect to independent claim 5, the coupling of a photon detector to a scintillator crystal for the recited reasons is so well known as to not require the citation of any reference. Nevertheless, such a coupling is shown by Melcher (Fig. 1) with photon detector **16**.

With respect to dependent claim 6, the scintillator crystal suggested by Melcher is monocrystalline (single crystal).

With respect to dependent claim 7, the mole ratio of lutetium and yttrium in the phosphor composition suggested by Watanabe *et al.* (corresponding to the recited "y") is within the recited range (Table IV). The proportion of cerium suggested by Melcher is within the recited range (Table 4).

With respect to dependent claim 8, the mole ratio of lutetium and yttrium in the phosphor composition suggested by Watanabe *et al.* (corresponding to the recited "y") is within the recited range (Table IV). The proportion of cerium suggested by Melcher is within the recited range (Table 4).

With respect to dependent claim 9, the coupled photon detector **16** suggested by Melcher is one of the recited alternatives.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The German patent document (2234968) is equivalent to the British patent document (1336518).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook (Robin) Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and Not Established for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ch
October 15, 2001


Constantine Hannaher
Primary Examiner